

# SEQUENCE LISTING

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<151> 1998-07-23

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**Table 1**

Parameter	Value
Number of subjects	10
Age (years)	27.8 ± 1.2
Height (cm)	176.5 ± 2.1
Weight (kg)	78.5 ± 3.5
BMI (kg/m <sup>2</sup> )	25.2 ± 1.5
VO <sub>2max</sub> (L/min)	3.8 ± 0.2
Heart rate (b/min)	165 ± 10
Systolic blood pressure (mmHg)	120 ± 10
Diastolic blood pressure (mmHg)	80 ± 10
Stroke volume (mL)	100 ± 10
Cardiac output (L/min)	3.8 ± 0.2
Respiratory quotient	1.0 ± 0.1
Lactate (mmol/L)	2.0 ± 0.5
Glucose (mg/dL)	90 ± 10
Fat oxidation (g/min)	0.5 ± 0.1
Carbohydrate oxidation (g/min)	1.5 ± 0.2
Total energy expenditure (kcal/min)	1.5 ± 0.2

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tgt aag gtt cat gat cta ata tat gac ctg tgc gtg aga gaa gtt caa Cys Lys Val His Asp Leu Ile Tyr Asp Leu Cys Val Arg Glu Val Gln 475 480 485	1553
agg gag aac att ttt atc atg aac gac att gtt ctt gac gta tca tat Arg Glu Asn Ile Phe Ile Met Asn Asp Ile Val Leu Asp Val Ser Tyr 490 495 500	1601
cca gaa tgt tca tat ctc tgt atg tat aaa atg cag ccc ttt aag cgc Pro Glu Cys Ser Tyr Leu Cys Met Tyr Lys Met Gln Pro Phe Lys Arg 505 510 515	1649
gtg act ggt gat gaa att aat tat tgt ccc tat ggt ctt tat agg gct	1697

Val Thr Gly Asp Glu Ile Asn Tyr Cys Pro Tyr Gly Leu Tyr Arg Ala	520	525	530	535	
ctt ctt acc cct gta aat cgt cag ttg aga gat cat gac aac aac aat	1745				
Leu Leu Thr Pro Val Asn Arg Gln Leu Arg Asp His Asp Asn Asn Asn		540	545	550	
ctt ttg aaa cga acc cat tct gtt ttc tct ttt cat ctt gag cct tta	1793				
Leu Leu Lys Arg Thr His Ser Val Phe Ser Phe His Leu Glu Pro Leu		555	560	565	
tat tat gtt ctc aaa tca gag gtt gtt cat ttc aaa tta ctc aaa gtc	1841				
Tyr Tyr Val Leu Lys Ser Glu Val Val His Phe Lys Leu Leu Lys Val		570	575	580	
ttg gag ctg aga cac aga cag att gat ggt ttc cct cga gag ata cta	1889				
Leu Glu Leu Arg His Arg Gln Ile Asp Gly Phe Pro Arg Glu Ile Leu		585	590	595	
agc ctc atc tgg ttg agg tac cta tca ttg ttc agc tat ggg aat ttc	1937				
Ser Leu Ile Trp Leu Arg Tyr Leu Ser Leu Phe Ser Tyr Gly Asn Phe		600	605	610	615
gat gta cct cca gaa att tgc agg tta tgg aat ctg cag aca ttc att	1985				
Asp Val Pro Pro Glu Ile Cys Arg Leu Trp Asn Leu Gln Thr Phe Ile		620	625	630	
gtt caa cgg ttt cga tca gat ata ata att ttt gct gag gaa att tgg	2033				
Val Gln Arg Phe Arg Ser Asp Ile Ile Ile Phe Ala Glu Glu Ile Trp		635	640	645	
gaa cta atg caa tta agg cat ctt aaa ctg ccc aga ttt tat ttg cca	2081				
Glu Leu Met Gln Leu Arg His Leu Lys Leu Pro Arg Phe Tyr Leu Pro		650	655	660	
gat tgc cca agt gga tct gtt gac aaa gga agg cac ttg gat ttt tca	2129				
Asp Cys Pro Ser Gly Ser Val Asp Lys Gly Arg His Leu Asp Phe Ser		665	670	675	
aac tta caa act att tct tac ttg tct cca cgt tgt tgc acg aag gag	2177				
Asn Leu Gln Thr Ile Ser Tyr Leu Ser Pro Arg Cys Cys Thr Lys Glu		680	685	690	695
gtt att atg ggg att cag aat gtc aaa aaa tta gga atc agt gga aat	2225				
Val Ile Met Gly Ile Gln Asn Val Lys Lys Leu Gly Ile Ser Gly Asn		700	705	710	
aag gat gac tat aaa agt ttt cgg gac tct ggg ctt ccc aac aat ctt	2273				
Lys Asp Asp Tyr Lys Ser Phe Arg Asp Ser Gly Leu Pro Asn Asn Leu		715	720	725	
gtc tat ctg cag caa ctt gaa ata ttg agt ctt ata tct gtt gat tat	2321				
Val Tyr Leu Gln Gln Leu Glu Ile Leu Ser Leu Ile Ser Val Asp Tyr		730	735	740	
agc ctt ttg cca gtg atc att tca agt gca aaa gct ttt cca gca acg	2369				
Ser Leu Leu Pro Val Ile Ile Ser Ser Ala Lys Ala Phe Pro Ala Thr		745	750	755	
ctc aag aag ttg aag ttg gaa aga act tat cta agc tgg tca tac ttg	2417				
Leu Lys Lys Leu Lys Leu Glu Arg Thr Tyr Leu Ser Trp Ser Tyr Leu					

760	765	770	775	
gac atc ata gct gag ttg cct aac ctt gag gtg ctg aag ctg atg gat				2465
Asp Ile Ile Ala Glu Leu Pro Asn Leu Glu Val Leu Lys Leu Met Asp				
	780	785	790	
gac gct tgt tgt ggt gaa gaa tgg cat cca att gtt atg gga ttt aat				2513
Asp Ala Cys Cys Gly Glu Glu Trp His Pro Ile Val Met Gly Phe Asn				
	795	800	805	
cga ttg aag ctt ttg cta att aaa tat agt ttt ctc aag ttc tgg aaa				2561
Arg Leu Lys Leu Leu Leu Ile Lys Tyr Ser Phe Leu Lys Phe Trp Lys				
	810	815	820	
gcc aca aat gac aat ttt cct gtc ctt gag cgc ctc atg att aga agt				2609
Ala Thr Asn Asp Asn Phe Pro Val Leu Glu Arg Leu Met Ile Arg Ser				
	825	830	835	
tgc aaa aat ttg aaa gag ata ccc att gag ttt gca gat ata cac aca				2657
Cys Lys Asn Leu Lys Glu Ile Pro Ile Glu Phe Ala Asp Ile His Thr				
	840	845	850	855
cta cag ctg att gag tta aga gag tgt cct ccc aaa ctt ggg gaa tct				2705
Leu Gln Leu Ile Glu Leu Arg Glu Cys Pro Pro Lys Leu Gly Glu Ser				
	860	865	870	
gct gca cga att cag aaa gaa caa gaa gac ctc gga aac aac cct gtg				2753
Ala Ala Arg Ile Gln Lys Glu Gln Glu Asp Leu Gly Asn Asn Pro Val				
	875	880	885	
gat gtt cgt atc tca aat cca ttg aag gag agt gat tct gat tca gaa				2801
Asp Val Arg Ile Ser Asn Pro Leu Lys Glu Ser Asp Ser Asp Ser Glu				
	890	895	900	
gaa cat tag gaaaggatct caaggccaga aggattgaac tcttgggatt				2850
Glu His				
	905			
tcatttcggc cctctatcac aaaataccac taaattatcg gtttcaagca atgtgtgact				2910
tccaaggaga tgtgatattct tttgtgttgt aacatatttt tgagttgtac tgattccctt				2970
cttcccttct ctttttatgt aactttacta attcaacttc aagtactagc agaccacatg				3030
gttgattgtg atcgagtttg atgattattt tatacgatga gacaaccagt ttagttttta				3090
aaaaaaaa				3099
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Met Ala His Ala Ser Val Ala Ser Leu Met Arg Thr Ile Glu Ser Leu				
1	5	10	15	
Leu Thr Phe Asn Ser Pro Met Gln Ser Leu Ser Cys Asp His Arg Glu				
20	25	30		



355	360	365
Trp Lys Thr Val Ala Lys Asp Val Lys Ser Phe Val Thr Asn Asp Pro		
370	375	380
Asp Glu Arg Cys Ser Arg Val Leu Gly Leu Ser Tyr Asp His Leu Thr		
385	390	395
Ser Asp Leu Lys Thr Cys Leu Leu His Phe Gly Ile Phe Pro Glu Asp		
405	410	415
Ser Asp Ile Pro Val Lys Asn Leu Met Arg Ser Trp Met Ala Glu Gly		
420	425	430
Phe Leu Lys Leu Glu Asn Asp Leu Glu Gly Glu Val Glu Lys Cys Leu		
435	440	445
Gln Glu Leu Val Asp Arg Cys Leu Val Leu Val Ser Lys Arg Ser Arg		
450	455	460
Asp Gly Thr Lys Ile Arg Ser Cys Lys Val His Asp Leu Ile Tyr Asp		
465	470	475
Leu Cys Val Arg Glu Val Gln Arg Glu Asn Ile Phe Ile Met Asn Asp		
485	490	495
Ile Val Leu Asp Val Ser Tyr Pro Glu Cys Ser Tyr Leu Cys Met Tyr		
500	505	510
Lys Met Gln Pro Phe Lys Arg Val Thr Gly Asp Glu Ile Asn Tyr Cys		
515	520	525
Pro Tyr Gly Leu Tyr Arg Ala Leu Leu Thr Pro Val Asn Arg Gln Leu		
530	535	540
Arg Asp His Asp Asn Asn Asn Leu Leu Lys Arg Thr His Ser Val Phe		
545	550	555
Ser Phe His Leu Glu Pro Leu Tyr Tyr Val Leu Lys Ser Glu Val Val		
565	570	575
His Phe Lys Leu Leu Lys Val Leu Glu Leu Arg His Arg Gln Ile Asp		
580	585	590
Gly Phe Pro Arg Glu Ile Leu Ser Leu Ile Trp Leu Arg Tyr Leu Ser		
595	600	605
Leu Phe Ser Tyr Gly Asn Phe Asp Val Pro Pro Glu Ile Cys Arg Leu		
610	615	620
Trp Asn Leu Gln Thr Phe Ile Val Gln Arg Phe Arg Ser Asp Ile Ile		
625	630	635
Ile Phe Ala Glu Glu Ile Trp Glu Leu Met Gln Leu Arg His Leu Lys		
645	650	655
Leu Pro Arg Phe Tyr Leu Pro Asp Cys Pro Ser Gly Ser Val Asp Lys		
660	665	670
Gly Arg His Leu Asp Phe Ser Asn Leu Gln Thr Ile Ser Tyr Leu Ser		
675	680	685



Pro Arg Cys Cys Thr Lys Glu Val Ile Met Gly Ile Gln Asn Val Lys  
 690 695 700  
 Lys Leu Gly Ile Ser Gly Asn Lys Asp Asp Tyr Lys Ser Phe Arg Asp  
 705 710 715 720  
 Ser Gly Leu Pro Asn Asn Leu Val Tyr Leu Gln Gln Leu Glu Ile Leu  
 725 730 735  
 Ser Leu Ile Ser Val Asp Tyr Ser Leu Leu Pro Val Ile Ile Ser Ser  
 740 745 750  
 Ala Lys Ala Phe Pro Ala Thr Leu Lys Lys Leu Lys Leu Glu Arg Thr  
 755 760 765  
 Tyr Leu Ser Trp Ser Tyr Leu Asp Ile Ile Ala Glu Leu Pro Asn Leu  
 770 775 780  
 Glu Val Leu Lys Leu Met Asp Asp Ala Cys Cys Gly Glu Glu Trp His  
 785 790 795 800  
 Pro Ile Val Met Gly Phe Asn Arg Leu Lys Leu Leu Leu Ile Lys Tyr  
 805 810 815  
 Ser Phe Leu Lys Phe Trp Lys Ala Thr Asn Asp Asn Phe Pro Val Leu  
 820 825 830  
 Glu Arg Leu Met Ile Arg Ser Cys Lys Asn Leu Lys Glu Ile Pro Ile  
 835 840 845  
 Glu Phe Ala Asp Ile His Thr Leu Gln Leu Ile Glu Leu Arg Glu Cys  
 850 855 860  
 Pro Pro Lys Leu Gly Glu Ser Ala Ala Arg Ile Gln Lys Glu Gln Glu  
 865 870 875 880  
 Asp Leu Gly Asn Asn Pro Val Asp Val Arg Ile Ser Asn Pro Leu Lys  
 885 890 895  
 Glu Ser Asp Ser Asp Ser Glu Glu His  
 900 905

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 Met Ala His Ala Ser Val Ala Ser Leu Met Arg Thr Ile Glu Ser Leu  
 1 5 10 15  
 ttg aca ttc aat tcg ccg atg caa tct cta tcc tgt gat cac aga gaa 96  
 Leu Thr Phe Asn Ser Pro Met Gln Ser Leu Ser Cys Asp His Arg Glu  
 20 25 30

gaa ctt tgc gct ctt cgt gaa aaa gtt agt tcc ctg gaa gta ttt gtc Glu Leu Cys Ala Leu Arg Glu Lys Val Ser Ser Leu Glu Val Phe Val 35 40 45	144
aag aac ttt gag aaa aac aat gtt ttt ggg gaa atg acg gat ttt gaa Lys Asn Phe Glu Lys Asn Asn Val Phe Gly Glu Met Thr Asp Phe Glu 50 55 60	192
gta gag gta aga gaa gtt gca agt gct gct gaa tac aca att caa ctg Val Glu Val Arg Glu Val Ala Ser Ala Ala Glu Tyr Thr Ile Gln Leu 65 70 75 80	240
aga cta aca gga act gta ctg gga gaa aat aaa agc cag aaa aaa aag Arg Leu Thr Gly Thr Val Leu Gly Glu Asn Lys Ser Gln Lys Lys Lys 85 90 95	288
gcg cgt cga agg ttt cgt caa agc ctg caa caa gta gca gag gac atg Ala Arg Arg Arg Phe Arg Gln Ser Leu Gln Gln Val Ala Glu Asp Met 100 105 110	336
gat cat atc tgg aaa gag tcg aca aag atc caa gat aaa gga aaa caa Asp His Ile Trp Lys Glu Ser Thr Lys Ile Gln Asp Lys Gly Lys Gln 115 120 125	384
gta tca aag gaa tca ttg gtt cat gat ttt tca agt tca aca aac gat Val Ser Lys Glu Ser Leu Val His Asp Phe Ser Ser Ser Thr Asn Asp 130 135 140	432
att ttg aag gtt aag aac aat atg gtt gga cgt gat gat caa agg aaa Ile Leu Lys Val Lys Asn Asn Met Val Gly Arg Asp Asp Gln Arg Lys 145 150 155 160	480
cag ttg tta gaa gat ctg act aga agc tac tct ggg gaa ccc aaa gtc Gln Leu Leu Glu Asp Leu Thr Arg Ser Tyr Ser Gly Glu Pro Lys Val 165 170 175	528
atc ccg att gtc ggg atg gga ggc ata ggt aaa aca acc tta gca aaa Ile Pro Ile Val Gly Met Gly Gly Ile Gly Lys Thr Thr Leu Ala Lys 180 185 190	576
gaa gtt tac aat gat gaa tca att cta tgc cgt ttt gat gtt cat gcc Glu Val Tyr Asn Asp Glu Ser Ile Leu Cys Arg Phe Asp Val His Ala 195 200 205	624
tgg gct acc ata tct caa cag cac aac aaa aag gaa att ttg ctg ggc Trp Ala Thr Ile Ser Gln Gln His Asn Lys Lys Glu Ile Leu Leu Gly 210 215 220	672
ctt ctg cat tcc aca atc aaa atg gat gac agg gtt aag atg att ggt Leu Leu His Ser Thr Ile Lys Met Asp Asp Arg Val Lys Met Ile Gly 225 230 235 240	720
gaa gca gag cta gca gac atg tta cag aaa agt tta aag aga aag agg Glu Ala Glu Leu Ala Asp Met Leu Gln Lys Ser Leu Lys Arg Lys Arg 245 250 255	768
tac tta att gtc ttg gat gat atc tgg agt tgt gaa gtg tgg gat ggc Tyr Leu Ile Val Leu Asp Asp Ile Trp Ser Cys Glu Val Trp Asp Gly 260 265 270	816



28

755	760	765	
tat cta agc tgg tca tac ttg gac atc ata gct gag ttg cct aac ctt			2352
Tyr Leu Ser Trp Ser Tyr Leu Asp Ile Ile Ala Glu Leu Pro Asn Leu			
770	775	780	
gag gtg ctg aag ctg atg gat gac gct tgt tgt ggt gaa gaa tgg cat			2400
Glu Val Leu Lys Leu Met Asp Asp Ala Cys Cys Gly Glu Glu Trp His			
785	790	795	800
cca att gtt atg gga ttt aat cga ttg aag ctt ttg cta att aaa tat			2448
Pro Ile Val Met Gly Phe Asn Arg Leu Lys Leu Leu Leu Ile Lys Tyr			
	805	810	815
agt ttt ctc aag ttc tgg aaa gcc aca aat gac aat ttt cct gtc ctt			2496
Ser Phe Leu Lys Phe Trp Lys Ala Thr Asn Asp Asn Phe Pro Val Leu			
	820	825	830
gag cgc ctc atg att aga agt tgc aaa aat ttg aaa gag ata ccc att			2544
Glu Arg Leu Met Ile Arg Ser Cys Lys Asn Leu Lys Glu Ile Pro Ile			
	835	840	845
gag ttt gca gat ata cac aca cta cag ctg att gag tta aga gag tgt			2592
Glu Phe Ala Asp Ile His Thr Leu Gln Leu Ile Glu Leu Arg Glu Cys			
	850	855	860
cct ccc aaa ctt ggg gaa tct gct gca cga att cag aaa gaa caa gaa			2640
Pro Pro Lys Leu Gly Glu Ser Ala Ala Arg Ile Gln Lys Glu Gln Glu			
	865	870	875
gac ctc gga aac aac cct gtg gat gtt cgt atc tca aat cca ttg aag			2688
Asp Leu Gly Asn Asn Pro Val Asp Val Arg Ile Ser Asn Pro Leu Lys			
	885	890	895
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<223> Description of Artificial Sequence: Primer 3

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<210> 8  
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<223> Description of Artificial Sequence: Primer 4

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caagaaaatt attagtatct tttttttaaa aaagtagttt gggaaagtta gtatatgtaa 180  
cattcttatt ttcttgtcag ttagtaatgg atcaagcttt ttagtatttt tatgacgata 240  
ttacaataac aacaacaaca ttttagtga attttcatag gtgagatata tgatctaaga 300  
cgatattgca tacataaaaa atcttatgga atattggaat agtataataa ggtcacaagt 360  
ggaacaataa ttatttactt agattagaat attattgggg taatgacttt tgggtataata 420  
agtcaatgaa tgatgtgaaa tttggtgaac atgttttagat aatttaaata caatttgaca 480  
agtgatgata caaattgacc aagtcattcta agcttataaa tttgataaca ctttattaat 540  
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ggtagatagg agtgctttgt tttggtatcc gtgctagtag tcatagcggt aagcttgtac 720  
tgtcttggtt gtggagtgtt gataataatt attgtttcag ataggtctat tggaatacta 780  
cttttttttg ttaactatct tttgtcttgt ttttgtgca agtagtcata gtactatacc 840  
tgtactatta tttgttctgt tattagatgt ccgtaaagat tgtgtcctct catgagcatg 900

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 aagaaaaaaaa gctcttgata ccatgtaaag gtttgagatg tagaagagaa agataaatgt 1140  
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 caaacacact taaaatatag gaaactatga gactcctaaa tataacacat aactaactaa 1260  
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